

CLAIMS

1. A carbon fiber woven fabric characterized by being obtained by firing a cellulose-based woven fabric, and by having a thickness in the range of 0.05-0.4 mm, a volume resistivity of not less than 0.2 $\Omega \cdot \text{cm}$ in the layer direction, and a gas permeability of not less than 1500 cc/cm²/hr/mmAq.

2. The carbon fiber woven fabric as claimed in claim 1, wherein the compressive strength is not less than 70 kgf/cm².

3. The carbon fiber woven fabric as claimed in claim 1, wherein the electrical resistance in the direction of thickness of the woven fabric is no greater than 50 m $\Omega \cdot \text{cm}^2$ as measured between two copper plates with a load of 4 kgf/cm².

4. The carbon fiber woven fabric as claimed in claim 1, wherein the orientation of the carbon fiber woven fabric as defined in the present specification includes an orientation component of 4/9 or greater.

5. The carbon fiber woven fabric as claimed in claim 1, wherein the orientation of the carbon fiber woven fabric as defined in the present specification is an average of 1/3 or greater.

6. The carbon fiber woven fabric as claimed in claim 1 which is a plain weave.

7. The carbon fiber woven fabric as claimed in claim 1 which has a water repellent property.

8. The gas diffusion porous carbon sheet for a solid polymer fuel cell which comprises a carbon fiber woven fabric as claimed in claim 1.

9. (Amended) A process for manufacture of a carbon fiber woven fabric as claimed in claim 1, characterized by firing a cellulose-based woven fabric in a non-oxidizing atmosphere.

10. The process for manufacture of a carbon fiber woven fabric as claimed in claim 9, wherein said

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cellulose-based woven fabric is soaked with a phosphoric

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acid or phosphorus compound solution.

11. The process for the manufacture of a carbon fiber woven fabric as claimed in claim 9, wherein the firing temperature is in the range of 900-3000°C.

5 12. The process for the manufacture of a carbon fiber woven fabric as claimed in claim 9, which includes coating the fired carbon fiber woven fabric with a water-repellent resin.

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